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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,988	01/05/2001	Paul S. Palumbo	99097CIP	5432

7590 04/08/2003

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EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

10

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/754,988		PALUMBO ET AL.	
	Examiner		Art Unit	
	Callie E. Shosho		1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-25,30-35 and 38-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30-33,38 and 39 is/are allowed.
- 6) ☒ Claim(s) 1,5-19,21-25,34,35 and 40-42 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 1/21/03.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1, 5, and 8-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Moffatt et al. (U.S. 6,221,932).

The rejection is adequately set forth in paragraph 5 of the office action mailed 10/16/01, Paper No. 3, and is incorporated here by reference.

4. Claims 1, 5, 8-9, 12, and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/31175.

The rejection is adequately set forth in paragraph 7 of the office action mailed 10/16/01, Paper No. 3, and is incorporated here by reference.

5. Claims 21-22, 24, 34-35, and 40-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Moffatt et al. '257 (U.S. 6,323,257).

The rejection is adequately set forth in paragraph 7 of the office action mailed 7/16/02, Paper No. 7, and is incorporated here by reference.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 23 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moffatt et al. '257 (U.S. 6,323,257).

The rejection is adequately set forth in paragraph 9 of the office action mailed 7/16/02, Paper No. 7, and is incorporated here by reference.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moffatt et al. '257 (U.S. 6,323,257) in view of Moffatt et al. (U.S. 6,221,932).

The rejection is adequately set forth in paragraph 10 of the office action mailed 7/16/02, Paper No. 7, and is incorporated here by reference.

9. Claims 1, 5-9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moffatt et al. '257 (U.S. 6,323,257) in view of WO 99/31175.

The rejection is adequately set forth in paragraph 11 of the office action mailed 7/16/02, Paper No. 7, and is incorporated here by reference.

10. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moffatt et al. '257 in view of WO 99/31157 as applied to claims 1, 5-9, and 12 above, and further in view of Moffatt et al. (U.S. 6,221,932).

The rejection is adequately set forth in paragraph 12 of the office action mailed 7/16/02, Paper No. 7, and is incorporated here by reference.

Response to Arguments

11. Applicants' arguments with respect to Ikeda et al. (U.S. 5,952,429) have been fully considered but they are moot in view of the discontinuation of this reference against the present claims.

12. Applicants' arguments filed 1/21/03 have been fully considered, but with the exception of arguments relating to Ikeda et al., they are not persuasive.

Specifically, applicants argue that:

(a) Moffatt et al. '932 disclose modified pigment with aromatic group different than that presently claimed.

(b) WO 99/31175 does not disclose electrophilic/nucleophilic groups as presently claimed.

(c) Moffatt et al. '257 disclose modified pigment that is reaction product of a polymerization reaction with the attached reactive group not reaction of reactive group with nucleophilic polymer as required in the present claims.

With respect to argument (a), applicants argue that Moffatt et al. '932 disclose the reaction of modified pigments which comprise activated ester group or aromatic ester group which do not undergo addition-elimination reaction as presently claimed but rather undergo nucleophilic or acylation reactions and thus, Moffatt et al. '932 do not disclose attaching to pigment "first" chemical group as presently claimed.

However, while it is agreed that Moffatt et al. '932 disclose that the aromatic ester group undergoes nucleophilic substitution, it is the examiner's position that this does not mean that the aromatic ester group does not or cannot undergo addition-elimination reaction. Evidence to support this position is found in *Organic Chemistry* (pages 1035 and 1048-1049), which discloses that elimination-addition is a specific type of nucleophilic substitution or specific mechanism used in nucleophilic substitution. Further, although the aromatic group of Moffatt et al. '932 is attached to the pigment on one side through an ester group, the aromatic group would still be able to react with the polymer through the substituents present on its other side. Further, it is noted that the Table on page 8 of the present specification discloses that specific type of aromatic group used in the present invention is fluoronitrobenzene and that Moffatt et al. '932 disclose the use of the same type of aromatic group. While Moffatt et al. '932's aromatic group is attached to pigment through ester group, as set forth above, this would not preclude the aromatic group from further reacting with a polymer.

With respect to argument (b), applicants argue that WO 99/31175 discloses three different types of modified pigment and that none of these pigments meets the requirements of the present claims.

However, it is the examiner's position that the third type of modified carbon black disclosed by WO 99/31175, i.e. carbon black having attached organic group to which is attached ionic or ionizable group to which is attached polymeric group, does disclose invention of present claims. The organic group which is attached to the pigment is an aromatic group (col.5, lines 20-21), to which is attached ionic or ionizable group such as amine group (col.12, line 27-col.13, line 1 and col.13, line 11), to which is attached "any polymeric group capable of being attached" to carbon black including polyamide or polyacrylate. Thus, it appears that WO 99/31175 does disclose electrophiles and nucleophiles as presently claimed. While applicants argue that the groups are attached using counterion exchange, it is noted that there is no requirement in the present claims regarding the mechanism by which the groups attached to the pigment react with each other. The present claims only require that the first group react with the second group to form modified pigment. Given that WO 99/31175 disclose reacting first group, i.e. organic group/ionic or ionizable group, with second group, i.e. polymer, it is clear that WO 99/31175 meets the requirements of the present claims.

With respect to argument (c), it is agreed that Moffatt et al. '257 disclose attaching reactive group such as sulfone to the pigment followed by polymerization reaction. However, given that the end result of Moffatt et al. '257 is the attachment of polymer to the reactive group that is attached to the pigment, this would appear to meet the limitation of the present claims, which require reacting first chemical group with second chemical group, i.e. nucleophilic polymer. The polymerization process of Moffatt et al. '257 results in polymer which then

attaches to reactive group. This can be seen in Figure 1 of Moffatt et al. '257 which shows that the polymeric group is attached to the reactive group which is attached to the pigment.

Applicants also argue that Moffatt et al. '257 do not disclose nucleophilic polymers as presently claimed given that alkylene glycol derived from acrylic and methacrylic acid is a radical polymerization monomer and not a nucleophilic polymer. Firstly, as described above, it is not the monomer but the polymer which is attached to the reactive group of the pigment. The result of the polymerization reaction of Moffatt et al. '257 is clearly a polymer which is attached to reactive group on pigment. Further, col.6, lines 30-31 of Moffatt et al. '257 disclose that the monomers include "alkylene glycol and their ethers derived from acrylic and methacrylic acid" which clearly encompasses both (i) alkylene glycol and (ii) alkylene glycol ethers derived from acrylic and methacrylic acid. As set forth on page 11, line 24 of the present specification, polyalkylene glycol is a polymer within the scope of the present claims.

Thus, given that the result of the polymerization reaction of Moffatt et al. '257 is a reaction between pigment with attached reactive group with polymer (which results from polymerization reaction), it is the examiner's position that Moffatt et al. '257 remains a relevant reference against the present claims.

Allowable Subject Matter

13. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 20 would be allowable if re-written in independent form including all of the limitations of the base claim and any intervening claims for the following reasons.

Moffatt et al. '932, WO 99/31175, and Moffatt et al. '257 each disclose a method of making modified pigment and an ink comprising the pigment wherein the method comprises reacting a pigment having attached first group with second group wherein the first and second groups are electrophiles and nucleophiles as set forth in claim 1. However, there is no disclosure or suggestion in any of the references to further react the modified pigment with succinic anhydride as required in present claim 20.

Ikeda et al. disclose method of making modified pigment and an ink comprising the pigment wherein the method comprises reacting a carbon black pigment which comprises functional group with polymer that comprises nucleophilic reactive group wherein the resulting product is then reacted with acylating agent such as succinic anhydride. However, there is no disclosure or suggestion that the functional group present on the polymer is an electrophilic or nucleophilic group as required in present claim 20.

14. Claims 30-33 and 38-39 are allowable over the "closest" prior art Moffatt et al. '257 (U.S. 6,323,257) and Ikeda et al. (U.S. 5,952,429) for the following reasons:

Moffatt et al. '257 disclose a method of making modified pigment and an ink comprising the pigment wherein the method comprises reacting a pigment having attached electrophilic group with nucleophilic polymer. However, there is no disclosure or suggestion in Moffatt et al. '257 that the resulting reaction product is then further reacted with an acylating agent as required in present claims 30 and 38.

Ikeda et al. disclose method of making modified pigment and an ink comprising the pigment wherein the method comprises reacting a carbon black pigment which comprises functional group with polymer that comprises nucleophilic reactive group wherein the resulting product is then reacted with acylating agent such as succinic anhydride. However, there is no disclosure or suggestion that the functional group present on the polymer is an electrophilic group as required in present claims 30 or 38.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

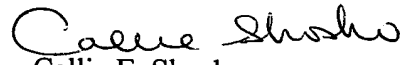
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho
Examiner
Art Unit 1714

CS
April 4, 2003